WEMMH/SB/21 (4/03)

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	10/520,553
Filing Date	January 5, 2005
First Named Inventor	Rahu R. UPLAP
Group Art Unit	Unknown
Examiner Name	Not Yet Assigned
Total Number of Pages in this Submission	Attorney Docket Number: 8016-643/8-02-12632

ENCLOSURES (check all that apply)

- ☐ Fee Transmittal Form
  - ☐ Fee Attached see PTO-2038 form
- ☐ Amendment Response
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☒ Information Disclosure Statement; PTO 1449 (2 sheets); 11 non-US patent references
- ☐ Certified Copy of Priority Documents
- ☐ Response to Missing Parts/ Incomplete Application
- ☐ Response to Missing Parts under 37 CRF 1.52 or 1.53
- ☐ Assignment Papers
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ To Convert a Provisional Application
- ☐ Power of Attorney, Revocation, Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Small Entity Statement
- ☐ Request for Refund
- ☐ After Allowance Communication to Group
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to Group (Appeal Notice, Brief, Reply Brief)
- ☐ Proprietary Information
- ☐ Status Letter
- ☐ Additional Enclosure (please identify below)
- ☒ Return Receipt Postcard

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual Name	**James M. Durlacher** **Woodard, Emhardt, Moriarty, McNett & Henry LLP**
Signature	James M. Durlacher
Date	**April 6, 2005**

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Signature	James M. Durlacher	Date	**April 6, 2005**

8016-643:JMD:339148

#4

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:	)
	) Before the Examiner
Rahu R. UPLAP, et al.	)
	) Not Yet Assigned
Serial No. 10/520,553	)
	) Group Art Unit
Filed January 5, 2005	)
	) Unknown
START-UP CONTROL OF INTERNAL COMBUSTION ENGINES	)

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April 6, 2005

Date of deposit

James M. Durlacher

Name of Registered Representative

James M. Durlacher

Signature

April 6, 2005

Date of Signature

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with Applicants' continuing duty of disclosure under 37 CFR §1.97 (b)(3), the following patents are brought to the attention of the United States Patent and Trademark Office and specifically to the attention of the Examiner assigned to the subject patent application. The submitted documents are listed on the attached PTO Form. A copy of any cited reference which is not a U.S. patent is enclosed herewith.

U.S. PATENT REFERENCES

Patent No.	Date	Inventor
4,114,570	09/19/78	Marchak et al.
4,205,641	06/03/80	Yamasaki et al.
4,239,022	12/16/80	Drews et al.
4,444,173	04/24/84	Yamato et al.

Patent No.	Date	Inventor
4,572,132	02/25/86	Piwonka
4,625,123	11/25/86	Gillett et al.
4,739,741	04/26/88	Iwata et al.
4,765,301	08/23/88	Koike et al.
4,964,386	10/23/90	Akiyama et al.
5,076,238	12/31/91	Rosenau et al.
5,199,400	04/06/93	Sprenger et al.
5,469,827	11/28/95	Tomisawa
5,890,467	04/06/99	Romzek
6,145,486	11/14/00	Aikawa
6,196,190	03/06/01	Przymusinski et al.
6,334,428	01/01/02	Nagatani et al.
6,467,458	10/22/02	Suzuki et al.
2002/ 0078922 A1	06/27/02	Mizuki
2002/ 0011238 A1	01/31/02	Yomogida
2003/ 0019472 A1	01/30/03	Konno

FOREIGN PATENT REFERENCES

DOCUMENT NUMBER	DATE	COUNTRY
WO 01/34961 A1	05/17/01	PCT
9-151760 A2	06/10/97	JP
10-9016 A2	01/13/98	JP
8-100692 A2	04/16/96	JP

DOCUMENT NUMBER	DATE	COUNTRY
8-28320 A2	01/30/96	JP
10-15443 A2	01/19/89	JP
62-93445 A2	04/28/87	JP
63-106340 A2	05/11/88	JP
60-108547 A2	06/14/85	JP
57-206736 A2	12/18/ 82	JP
62-189338 A2	08/19/87	JP

CONCISE EXPLANATION OF NON-ENGLISH REFERENCES

A concise explanation of the relevance of the non-English language prior art patents under 37 CFR §1.98(a)(3), as presently understood by the individual designated in §1.56(c) as most knowledgeable about the content of the information is set forth below.

WO 01/34961 A1

This reference appears to disclose a method which consists, when starting the engine, in: a) monitoring the temperature (T) of the engine and the pressure (P) of the fuel delivered by the fuel pressurizing means; b) if T is less than a predetermined threshold temperature (T_s), setting an engine starting mode with high pressure fuel when the pressure (P) becomes higher that a predetermined threshold pressure (P_{sl}); and c) setting an engine starting mode with low pressure fuel if $T>T_s$.

JP 9-151760 A2

This reference appears to disclose a process to ensure good starting property at all times by setting a first starting time correcting coefficient, in the case where a cooling water temperature is a starting time cooling water temperature and less, setting a second starting time correcting coefficient which is different from a damping characteristic in the case where the cooling water temperature exceeds the starting time cooling water temperature, and calculating a proper starting time injection pulse width. A starting time injection pulse width is calculated on the basis of detecting signals from various kinds of sensors and a prescribed starting time correcting coefficient, and a starting time fuel injection rate from an injector 6 is controlled by the calculated value. A water temperature sensor for detecting a cooling water temperature is arranged, a detected water temperature (a real water temperature) and a prescribed starting time cooling water temperature are compared with each other, and a first starting time correcting coefficient is set in the case where the real water temperature is the starting time cooling water temperature and less. In the case where the real water temperature exceeds the starting time cooling water temperature, a second starting time correcting coefficient which is different from a damping characteristic in relation to rotation raising comparing with the first starting time correcting coefficient is set, and the starting time injection pulse width is calculated by those correcting coefficients.

JP 10-9016 A2

This reference appears to disclose a process to calculate an appropriate fuel injection rate at the time of start by using a cylinder intake air rate pulse width calculated

by an air density and a cylinder capacity per cylinder until engine speed attains a prescribed value at the time of start. It is determined whether engine speed exceeds a prescribed value or more in S1, it is determined whether present engine speed is the prescribed value or more in the case where it never exceeds the prescribed value or more in S2. In the case under prescribed value, a cylinder intake air rate is calculated from an air density and a cylinder capacity per cylinder since negative pressure in an intake port is equal to nearly the atmospheric pressure, and a fundamental injection pulse width TP is rearranged into a start time fundamental injection pulse width TP100 on the basis of its calculated cylinder intake air rate in S4. Correction is carried out while taking responsiveness and mixing performance in sticking fuel into consideration, and the fuel injection rate is calculated. In the case of the prescribed value or more, the fundamental injection pulse width is calculated by engine speed, the intake air rate, a start time cooling water temperature, and the like in S3.

JP 8-100692 A2

This reference addresses the need to prevent the oversupply of a fuel and to enhance starting performance at the time of a low temperature by providing an injection supply means for reducing a starting injection quantity which is required at the time of starting when the operating time and the stopping time of an internal combustion engine before starting are not more than a set value and the temperature of cooling water is not more than a set value at the time of starting. Included as part of this invention is a fuel injection valve 4, a water temperature sensor 10 for detecting a cooling water temperature TW, an air temperature sensor 12 for detecting an intake air temperature TA, a throttle

sensor 14 for detecting the degree θ of opening of a throttle valve, an engine speed sensor 16 for detecting the number Ne of revolutions of an engine and an atmospheric sensor 18 for detecting an atmospheric pressure are connected to a control means 8. A starting fuel injection quantity control device 6 controls a fuel injection valve 4 by the control means 8 in order to correct the reduced quantity of the starting injection quantity TS of an internal combustion engine 2 when a cooling water temperature is not more than a set value at the time of start of the internal combustion engine 2 and the operating time TON and the stopping time TOF of the internal combustion engine 2 before starting are respectively not more than a set value, thereby enhancing the starting property.

JP 8-28320 A2

This reference appears to disclose a means to improve characteristics of exhaust by estimating a fuel amount remaining in an internal combustion engine at starting, and correcting the fuel supply rate. When electromotive force VO2 of an oxygen sensor 19 is within a specified range at the time of starting, it is determined not to be activated, while when the force is out of the specified range, it is determined to be activated. In the case that it is activated, a decreasing correction factor K of a reference fuel supply rate TCS is set according to a water temperature, such that it is increased as the time is short from lowering of an engine 11 to restarting, cylinder residual fuel exists, and a water temperature is low. A fuel supply rate at the starting time TCS is set by multiplying TCS by K.

JP 10-15443 A2

This reference appears to disclose a means to improve startability of an internal combustion engine by detecting the condition of the member to be operated when the engine starts, supplying a fuel quantity to the engine according to an engine temperature based on the detected result and generating a signal for permitting the engine start a lag time after start of fuel supply. An internal combustion engine A is provided with a fuel supply means B, a starter C for cranking the internal combustion engine A in case of its start. A starting command detecting means D for detecting a signal for designating a command from an operator to permit the engine start is also arranged, and when the starting command is detected, the specific quantity of fuel according to an engine temperature is supplied to the engine from the fuel supply means B by a fuel control means E and also a signal for permitting the starter C to operate is generated a lag time after start of fuel supply by a signal generating means F. Accordingly, the engine can start very nicely by supplying fuel to the engine already at the time when the signal for permitting the engine start is generated.

JP 62-93445 A2

This reference appears to disclose a means to improve the starting performance by setting the reduction degree of the correction value for correcting the fuel supply quantity on engine start with the increase of the number of revolution to the smaller value when the engine temperature is lower than a prescribed value. When a starter switch 12 is turned ON, and the speed of an engine 1 is less than a cranking speed on start, an ECU 6 determines the valve opening time of a fuel injection valve 7 as the fuel supply quantity

in correspondence to the engine cooling water temperature detected by an engine cooling water temperature sensor 10. The fuel supply quantity is corrected by the correction value which reduces with the increase of the engine speed detected by an engine speed sensor 11. The reduction degree of the correction value is set to the smaller value when the engine cooling water temperature is lower than a prescribed value. Therefore, the fuel supply corresponding to the engine temperature on start is permitted.

JP 63-106340 A2

This reference appears to disclose a means to ensure reliable starting irrespective of voltage drop at starting by correcting to gradually increase a starting fuel injection quantity after the beginning of start of an engine, and correcting to gradually decrease an increased fuel injection quantity after a predetermined time is elapsed from the increase correction. When an engine cranking condition is determined according to an output signal from a starter switch 45, an electronic control device 47 retrieves a starting fuel injection time from a map according to a cooling water temperature detected by a cooling water temperature sensor 41. The starting fuel injection time is corrected according to a time correction factor changing with an elapsed time from starting and an engine speed correction factor changing with an engine speed to thereby obtain an actual starting fuel injection time to be actually executed. The time correction factor is set to a value such that a fuel injection quantity is corrected to be gradually increased after starting and the increased fuel injection quantity is then corrected to be gradually decreased after a predetermined time is elapsed from the beginning of the increase correction.

JP 60-108547 A2

This reference appears to disclose a way to obtain the smooth and certain engine starting characteristic even in severe coldness by increase-correcting the starting fuel amount supplied on engine start, by the increased-amount correction value at a prescribed temperature. When the temperature TW of engine cooling water is a prescribed value TWST or less in STEP2, the respective standard value-opening time TiCRM and TiCRS of the main and sub fuel injection valves are calculated in STEP4. In STEP6, the sub fuel injection valves are calculated in STEP4. In STEP6, the simultaneous injection by all injection valves is carried out on the basis of the valve opening time TOUTM of the main fuel injection valve. In STEP7, the amount of fuel corresponding to one cylinder of the subinjection valve is jetted-out on the basis of the valve opening time TOUTS of the sub fuel injection valve. Therefore, in severe coldness, the starting fuel amount is increase-corrected, and smooth and certain engine starting characteristic can be obtained.

JP 57-206736 A2

This reference appears to disclose a means to perform stable start operation of an engine, in electronic control of fuel injection quantity, by setting the fuel injection quantity at starting to decrease in accordance with a temperature rise of the engine further correcting the fuel injection quantity to decrease in accordance with a speed increase of the engine. A start decision circuit 511 decides an engine in a state of starting on the basis of a signal of a starter switch 17 and rotary speed NE, then a signal H is input to an AND circuit 513 and signal L is input to a circuit 515. Accordingly, output of a calculation control circuit 512 of valve opening time Ti at starting is fed to an injection

valve 6 through an OR circuit 516. This valve opening time Ti is set with a reference vale opening time to decrease a fuel injection quantity in accordance with a rise of engine temperature TW, further corrected to decrease the reference valve opening time in accordance with an increase of engine speed NE at starting. Accordingly, an optimum flow of fuel to a condition at starting is supplied, and the engine can be surely and stably started.

JP 62-189338 A2

This reference appears to disclose a means to obtain a stable drivability even at starting of an engine under the condition where fuel is boiled, by changing a reduction rate of a fuel increasing value after starting according to a detected temperature representing a temperature of a fuel injection valve just after starting. An electronic control unit 5 operates to set an initial value of a fuel increasing value after starting according to an engine temperature to be detected by an engine cooling water temperature sensor 9 just after starting of an internal combustion engine 1 having a fuel injection valve 6, and increase a fuel quantity to be supplied to the internal combustion engine 1 according to the fuel increasing value reducing from the initial value at a predetermined reduction rate. A temperature inside the fuel injection valve 6 just after starting of the internal combustion engine 1 is assumed from a suction air temperature to be detected by a suction air temperature sensor 7. When the suction air temperature is a predetermined value or higher under the condition where the fuel in the fuel injection valve 6 is boiled, the reduction rate of the fuel increasing value is set to be small, thereby preventing the leanness of the fuel mixture.

This Information Disclosure Statement is being filed prior to the issuance of an Office Action. It is believed that no other fee is required for submission of this Statement. Should any additional fee be required, please charge such fee to Deposit Account No. 23-3030, but not to include any payment of issue fees.

Respectfully submitted,

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INFORMATION DISCLOSURE CITATION (Use several sheets if necessary) Sheet 1 of 2	Atty. Docket No. 8016-643/8-02-12632	Serial No. 10/520,553
	Applicant Rahu R. UPLAP, et al.	
	Filing Date January 5, 2005	Group

U.S. PATENT DOCUMENTS

*Examiner Initial		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	Filing Date If appropriate
		4,114,570	09/19/78	Marchak et al.	123	32	
		4,205,641	06/03/80	Yamasaki et al.	123	179	
		4,239,022	12/16/80	Drews et al.	123	491	
		4,444,173	04/24/84	Yamato et al.	123	491	
		4,572,132	02/25/86	Piwonka	123	357	
		4,625,123	11/25/86	Gillett et al.	290	40 B	
		4,739,741	04/26/88	Iwata et al.	123	491	
		4,765,301	08/23/88	Koike et al.	123	491	
		4,964,386	10/23/90	Akiyama et al.	123	339	
		5,076,238	12/31/91	Rosenau et al.	123	491	
		5,199,400	04/06/93	Sprenger et al.	123	339	
		5,469,827	11/28/95	Tomisawa	123	491	
		5,890,467	04/06/99	Romzek	123	299	
		6,145,486	11/14/00	Aikawa	123	179.17	
		6,196,190	03/06/01	Przymusinski et al.	123	352	
		6,334,428	01/01/02	Nagatani et al.	123	305	

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	Translation Yes	Translation No
		WO 01/34961 A1	05/17/01	PCT	F02D	41/06		X
		9-151760 A2	06/10/97	JP	F02D	41/06		X
		10-9016 A2	01/13/98	JP	F02D	41/06		X

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s) publisher city and/or country where published	T[2]

Examiner	Date Considered

*Examiner: initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

INFORMATION DISCLOSURE CITATION (Use several sheets if necessary) Sheet 2 of 2	Atty. Docket No. 8016-643/8-02-12632	Serial No. 10/520,553
	Applicant Rahu R. UPLAP, et al.	
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U.S. PATENT DOCUMENTS

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		6,467,458	10/22/02	Suzuki et al.	123	491	
		2002/ 0078922 A1	06/27/02	Mizuki	123	352	12/20/02
		2002/ 0011238 A1	01/31/02	Yomogida	123	491	09/25/01
		2003/ 0019472 A1	01/30/03	Konno	123	339.24	06/14/02

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		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	Translation Yes	Translation No
		8-100692 A2	04/16/96	JP	F02D	41/06		X
		8-28320 A2	01/30/96	JP	F02D	41/06		X
		10-15443 A2	01/19/89	JP	F02D	41/06		X
		62-93445 A2	04/28/87	JP	F02D	41/06		X
		63-106340 A2	05/11/88	JP	F02D	41/06		X
		60-108547 A2	06/14/85	JP	F02D	41/06		X
		57-206736 A2	12/18/ 82	JP	F02D	41/06		X
		62-189338 A2	08/19/87	JP	F02D	41/06	X	

See, USP 4,765,301, *supra*

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s) publisher city and/or country where published	T[2]

Examiner	Date Considered

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